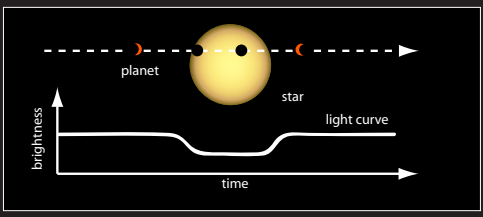

discover

National Aeronautics and
Space Administration

*Kepler* is NASA's first mission capable of finding Earth-size and smaller planets in the Habitable Zone (HZ) of stars similar to our Sun. The HZ is the distance from a star where liquid water can exist on a planet's surface.

*Kepler* consists of a specially designed telescope called a photometer with a wide field of view that will be launched into orbit around our Sun. The photometer functions as a very precise light meter. It can detect the very faint and periodic decreases in a star's brightness caused by a planet transiting its star. Transits occur when the orbit of a planet is along our line of sight to a star.




Transits last from a few hours to about half a day. Three transits with a consistent period, brightness change, and duration provide a rigorous method for detecting extrasolar planets. From the transits observed with *Kepler*, scientists can determine both a planet's size and its orbit. The planet's size determines if it could have a life-sustaining atmosphere. Knowing the orbit and type of star, scientists can calculate if the planet is in the HZ of that star.

*Kepler* will be pointed at a rich star field in the Cygnus and Lyra regions of our galaxy, the Milky Way, and continuously monitor more than 100,000 stars for several years to look for planets.

Scientists expect to detect hundreds of Earth-size planets if they are common around other Sun-like stars. If only a few or no small planets are found, then we can conclude that other Earths are probably rare.

Learn more, visit the Kepler web site
http://kepler.nasa.gov

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